

ABSTRACT OF THE DISCLOSURE

5 A method of disposing waste includes the step of forming a primary waste pond called an Advanced Facultative Pond (AFP). A stable microbiological methane fermentation zone is established within the AFP. The system constitutes a complete primary treatment of organic waste and wastewater that does not require daily sludge handling typically associated with organic waste treatment and disposal. The method of the invention converts organic compounds, including settleable solids, into methane. The invention controls sulfide odors from methane fermentation. The invention also provides a method of filtering raw wastewater through a bed of fermenting organic solids suspended by gas evolved in a fermentation zone. Hydrogen sulfide is oxidized in accordance with the invention. The technique of the invention biologically increases pH near the pond surface, thus retaining hydrogen sulfide in solution in the pond water. The biological increasing of the pH level near the pond surface increases the rate of die-away of pathogenic bacteria. The invention transforms proteins and other organic nitrogen compounds to nitrogen gas. The invention also transforms proteins and other organic nitrogen compounds to nitrogen gas; the invention detoxifies chlorinated hydrocarbons and volatile organic compounds; the invention captures and stores gases evolved from methane fermentation; the invention removes heavy metals, while establishing meromixis in fermentation cells or zones within primary wastewater ponds.